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Director's Letter

Dear Member:

"We need a Director's Letter for March," said the Editor, "and [only she used ladylike language] for God's sake make it interesting! Make it bright, gay, sparkling—full of bounce, life!"

What an order for a raw, rainy Monday morning in early January! I revolt. I rebel. I *can't* be interesting. The way I feel, I might even say, I *won't*!

Moreover, I'm like a bull tethered in a pasture. I am restricted. Of all the interesting things in the world to talk about I am limited (or should be) to cycles, or something I can drag in by the heels in relation to cycles. If I were to talk about birds I could not talk about their color or their music or their gaiety. I'd have to talk about their cycles of abundance or temperature. If I were to talk about love I couldn't speak of romance, or bare shoulders in candle light. I'd have to talk about 14 or 29 1/2-day cycles of amorousness. It limits a fellow!

I have another restriction. "Never try to instruct business men." Virgil Jordan, head of the National Industrial Conference Board, said to me once, "It's much better to entertain them!"

And still another: It is illustrated by the story of the astronomer from Chappaqua, New York, who spoke to the local boy scouts. The speech was such a success that he was asked to speak to the local business men's group. After he had met with the business men a friend asked him, "Did you give the same speech?"

"Well, yes," said the astronomer, "but of course I had to make it simpler!"

Besides all this I'm tired of talking about cycles. I'm like the man in the little town in Virginia where my wife was raised. He told his sister, who kept house for him, that he was tired of eggs for breakfast. She went blubbering to a neighbor, "I don't know *what* I'm going to do! Twenty-one years now, come next February, I've given Buzz fried eggs for breakfast *every single day*, and now he says he's tired of 'em!"

With this totally irrelevant preamble I think I'll talk about Miniature Island, trends, Russia, and driving backwards.

Miniature Island

A little gimmick I told you about in the Director's Letter for December comes to mind in this connection. I called it Miniature Island. (The idea seems to have made quite a hit with some of our members.)

You will remember that it is a little scheme to divide all figures by 100,000 to make them small enough to be directly comprehensible. Using this concept Continental United States becomes a little island of 30 square miles (10 miles long and 3 miles wide). It has about 1750 people, 437 families. Of these 397 are white, 40 nonwhite.

It has 47 farms on which there live 208 people. The rest of the people live in the little village.

There are 64 dwelling units on the farms (some farms have more than one dwelling), 396 in the little town.

The little railroad is 2 1/3 miles long, of which 1 1/2 miles is double track. Ten men run it, but, it is alleged, if it were not for featherbedding, five could do it easily.

I could go on and on, but this is enough to give you the general idea.

Now against this background let us examine the recent steel strike (I refrained from doing it at the time because of the political implications. We are of course strictly non-partisan).

Last November in Miniature United States there were 693 people in the civilian labor force (25 in the armed forces). Of the people in the labor force 656 were employed and 37, as usual, unemployed. Of the 656 who were employed the 5 steel workers were *voluntarily* not working (on strike). This fact had thrown five other people (of the 651 remaining employed persons) out of work. 646 were still working. These facts measure the extent of the "emergency" that existed when the Taft-Hartley injunction was requested and granted.

Things come to life, don't they?

Driving Backward

Can you imagine the strain of driving an automobile *backwards*, at constant speed, on a winding road? We'll allow you to look from side to side, but you will have no rear view mirror and, under *no* circumstances can you turn around to see where you are going!

"Impossible!!" you say. But for all practical purposes, isn't that a good representation of what *you* are doing when you concern yourself with the future of stock or commodity prices? General business? You can see what *has* happened. You can see what *is* happening. But you can't see, even one minute ahead, what will happen. Moreover, you are being carried forward, irresistibly, at a constant speed of 60 minutes to the hour. You can't wait, you can't pause, you can't even slow down. And, like the man in the automobile, if you don't guess right, you are in for damage.

Of course, in driving an automobile this way, you would learn some things that would throw light on what is ahead. Perhaps to the right or the left there would be converging hills, or a stream, or some other indication to help you. In forecasting economic events, you have helps of this sort, too. But honestly now, aren't you pretty much flying blind?

Under these circumstances wouldn't it be astounding if someone were to discover that the road had a *pattern*? That it had *structure*? That, insofar as this structure could be learned, and insofar as it dominated, the coming bends in the road were *predictable*?

The important thing at the moment is not how good or bad, how practical, or impractical the forecasts are. The important thing is that, *from* internal evidence alone, they can be made at all! Time enough to improve them as we learn more!

Trend

Trend is the underlying tendency of a series of figures. It is that element which changes its direction slowly. If we know the value of each of several points on a trend we can plot the future course of the trend, just as several sightings of a sputnik can tell us approximately where the sputnik will be at any given time in the future.

It is all right for me to talk about trend because trend is so intimately tied up with cycles. Trend is the axis around which the cycles oscillate. Moreover, for the most accurate determination of trend you must know and adjust for the cycles. Trend and cycles go together like hand and glove.

Now it is a universal tendency for trend to get flatter and flatter as things get older and older. The patent article in a recent issue illustrates this tendency to perfection. Our rate of growth is slowing down. Russia's rate of growth is much more rapid than ours, but even it is slowing down.

Russia

Given a few figures—present size, present rate of growth, rate at which present rate of growth is slowing down—it is the easiest thing in the world to project our level of steel production, let us say, or total manufactures, and Russia's and to compare the two curves.

I have not yet had time to do this, except in the sketchiest sort of way, but even without doing it I feel quite sure of how the calculation would turn out. We can take it for granted that at some time in the not too distant future—perhaps 25 years or so—Russia will surpass us industrially just as she now surpasses us in population. Instead of being the biggest and the strongest country in the world we will sink into the number two position. This, it seems to me, is inevitable.

What can we do about it? Many things.

Politeness

For one thing, *without letting our guard down*, I think we can be more polite. I can't see that civility could hurt anything, and considering that in a number of years we may be smaller and weaker, it might be good policy. What do *you* think?

Of course the Russians are often impolite to us, but I don't see that that has much of anything to do with it. If we gave them a good example their conduct might improve. Even if it didn't, what matter?

But aren't we polite to the Russians? No.

It may help you to see what I mean if you think of the nations of the world as a group of families. Uncle Sam, his wife and children. Ivan Ivanovich, his wife and children. John Bull, his wife and children, and so on.

Suppose one of Sam's boys visited Ivan's home and told Ivan's children, "Ivan makes you work too hard. At our house our pop does all the chores by machinery. We do hardly any work at all." Do you think that would make Ivan like Sam and his family any better, especially if Ivan were having trouble getting work out of the boys as it is?

Or if Sam kept saying to Ivan's slaves, "Why don't you revolt?"

Or if one of Sam's boys visited Ivan and came home *and put it in the newspaper*, "All Ivan's women dress like dowds!" Do you see what I mean?

It is almost impossible to read anything about Russia that isn't slanted disparagingly. Even in fiction the Russian, when there is one, is usually cast as the villain. I shouldn't think the Russians would like it (they read the papers too). I don't think it fosters good feeling. I don't think it is wise. I don't think it is *prudent*. I don't think it is kind.

Our continual disparagement must seem to the Russians like a campaign of hate. Unless we change, our attitude may reap its own—and I fear—unpleasant reward.

Cordially yours,

Edward R. Dewey

Director

It is with deep regret that we report the death of the Honorable W. Cameron Forbes, who had been a member of the Committee of the Foundation for the Study of Cycles since 1940.

Dr. Forbes was born in Milton, Massachusetts, in 1870. He was educated at Harvard University and at Trinity and Bates Colleges. Active in business and public life, Dr. Forbes was particularly interested in the Philippine Islands and from 1909 to 1913 was Governor General of the Islands.

He worked with various government committees, and from June 1930 to April 1932 was Ambassador to Japan.

The list of Dr. Forbes activities is long, but among them he was an Overseer, Harvard University, 1914-1920, Life Member Emeritus, Massachusetts Institute of Technology, and Member, Board of Trustees, Carnegie Institution of Washington.

Research by Staff

SHOE PRODUCTION IN 1960

BY GERTRUDE SHIRK

Summary

Shoe and slipper production in the U.S. will be down slightly in 1960 compared with 1959, if a 27-month cycle present in these figures since 1942 continues to influence these figures, and if the underlying growth trend holds steady at 1959 levels. A 12-month or seasonal cycle can be expected, ideally, to give peaks of production in March and August; troughs in July and November.

More shoes and slippers were produced in the U.S. during 1959 than in any previous year. Even if there is a slight decline in 1960, production may still exceed that of any year prior to 1959.

The final 1959 production figure will probably exceed 646 million pairs. Our calculated figure for 1960 is 627 million pairs.

Figure 1 below shows actual monthly production of shoes and slippers beginning with July 1957 as a solid line. The broken line records the combination of cycles and trend, and is a calculated line. This calculated line is not to be considered as anything other than a guide as to how production may move if the cycles continue, if the trend continues, and if other non-cyclic factors do not override the force of the cycles.

On a yearly basis the two lines on Figure 1, actual production and calculated production, compare as follows.

Total Shoe Production
(Millions of Pairs)

Year	Actual	Calculated
1956	592.2	584.8
1957	593.6	595.6
1958	582.4	582.9
1959	645.6 (Estimated)	644.5
1960	?	626.9

Of the three factors that went into the calculated line, the 12-month or seasonal cycle is the most dependable.

Year after year the production of shoes follows a regular pattern, with March a high month and August a high month, and with dips in-between.

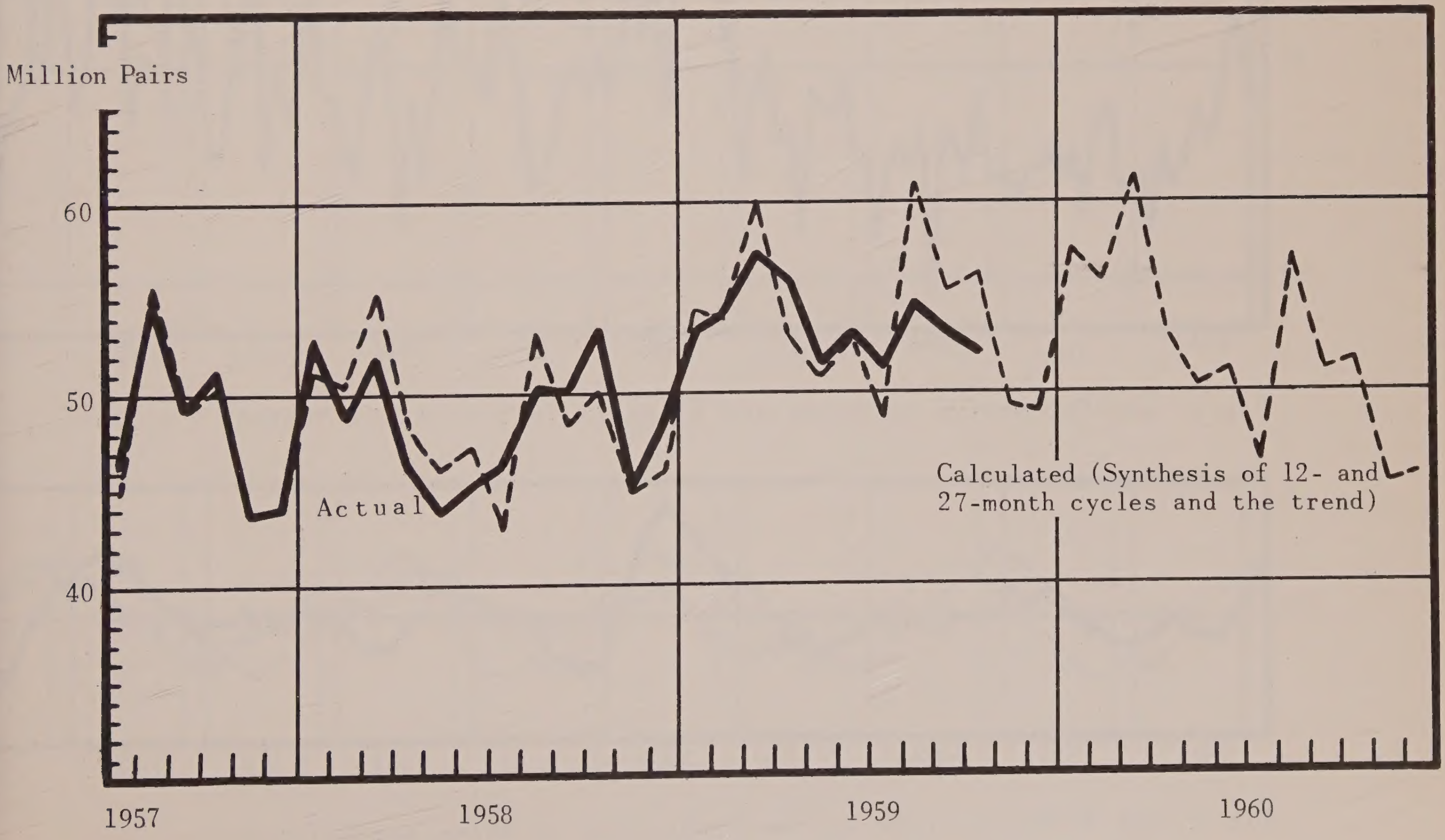


Fig.1 Shoe Production - Actual and Calculated

The average month-to-month pattern which has existed in the production of shoes since World War II is given in the following table.

Month	% of Year Average	Month	% of Year Average
Jan	106.4	Jul	89.5
Feb	104.0	Aug	111.7
Mar	114.8	Sep	100.2
Apr	100.5	Oct	102.3
May	95.7	Nov	89.9
Jun	98.2	Dec	90.4

The average 12-month pattern we have used is based on the 1948—1959 experience, although production figures are available back through 1924. During World War II the seasonal variation was greatly reduced, and certainly should be excluded from consideration. Prior to World War II, the seasonal variation was greater, and slightly different than that which developed after the war. Therefore, it seems appropriate to use only the *current* pattern in our calculated line.

The second cycle we are using in our calculated line is one which is 27 months long. The 27-month cycle is not as important as the seasonal pattern, but when the seasonal pattern is removed from the figures the longer cycle can be seen.

Figure 3 below is a diagram of the 27-month cycle. The solid line is based on the actual figures, and is the basis for the ideal cycle. The average of the solid line (when split into 27-month segments) is shown as the broken line, or the ideal 27-month cycle.

On the average, the 27-month cycle is 5% above the trend at the time of high, 5% below at trough.

The average 27-month cycle had its most recent high at October 1959. It is now moving down toward a low due, ideally, at November 1960.

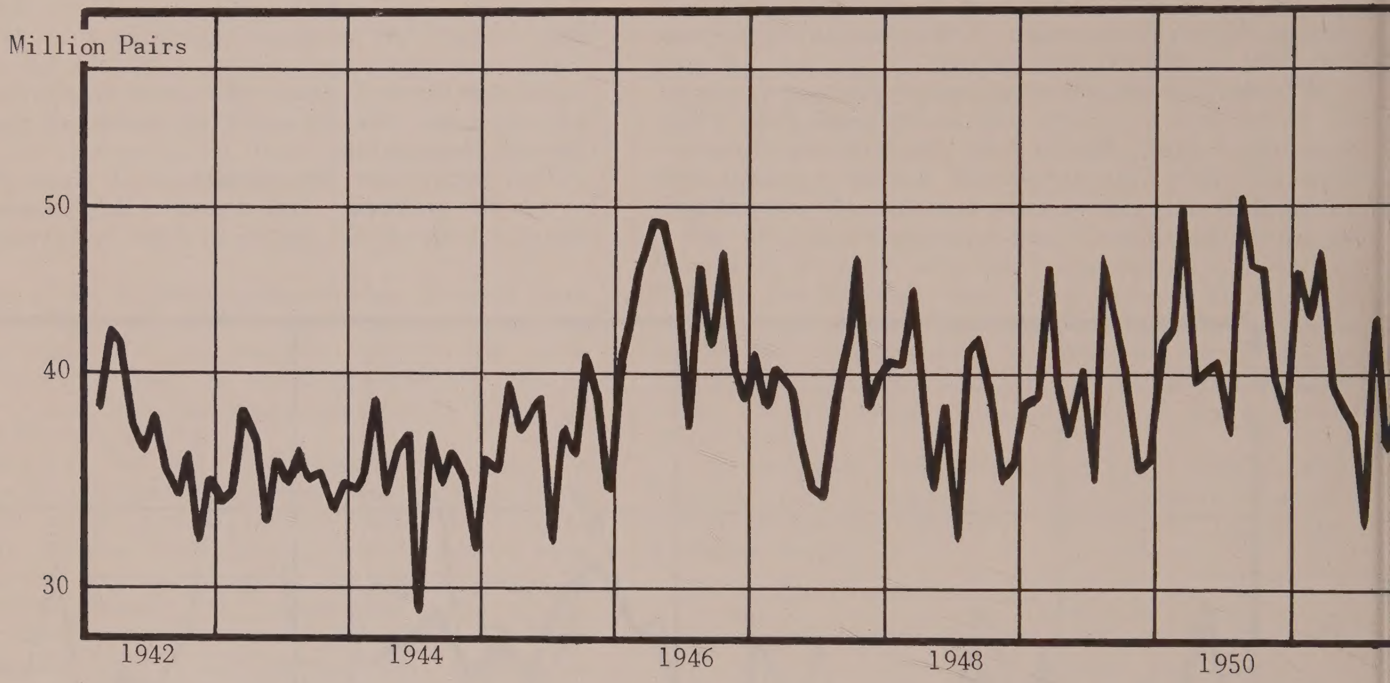


Fig.2 The Production of Shoes and Slippers in the United States

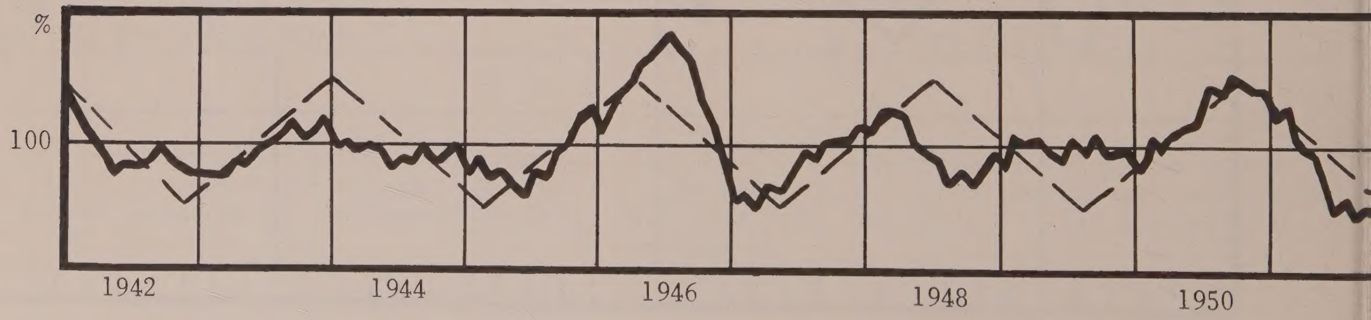


Fig.3 The 27-Month Cycle in the Production of Shoes and Slippers

Prior to World War II, this cycle appeared to be shorter than 27 months. Over the entire 1924—1959 period, the length averages a little over 25 months. But since 1942 the length has been 27 months so regularly that it is included at this *current* length in the calculated line.

As I mentioned above, however, this cycle is not as important as the seasonal pattern in shoe production.

In fact, the seasonal pattern seems to be the most important feature of this series of figures. It is immediately visible in the chart of the actual monthly production of shoes (Figure 2).

The seasonal fluctuation dominates Figure 2. But, in addition, the steady uphill climb in the production of shoes, particularly since 1951, is also readily apparent.

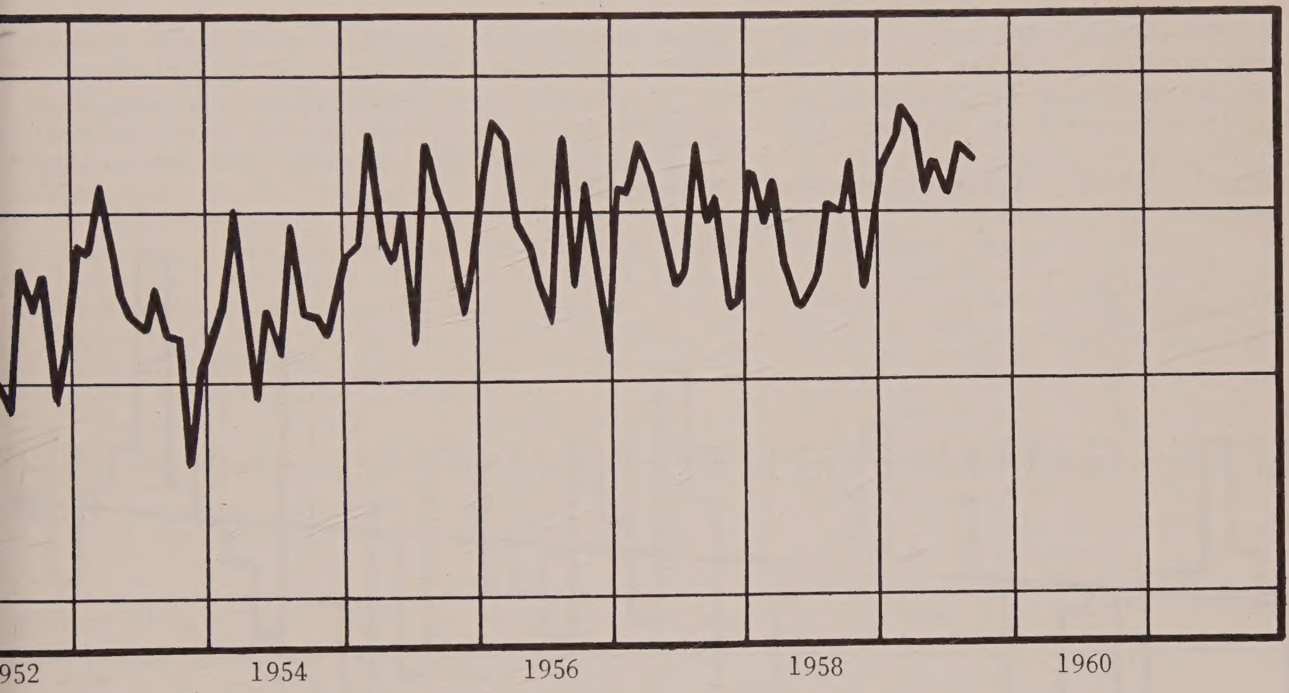
The underlying trend in our calculated line was extended through 1960 at the same level as 1959.

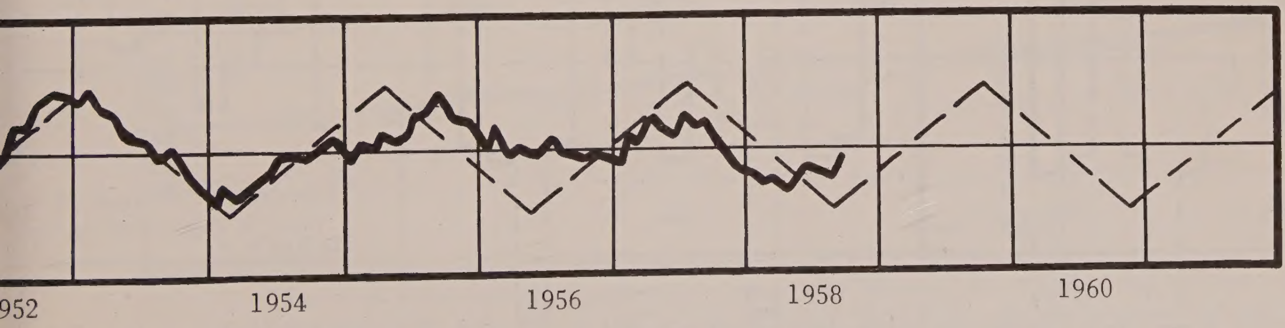
With the trend level throughout 1960, and the 27-month cycle going down, the final calculation for 1960 is slightly below the actual production for 1959.

The trend may well continue uphill, in which case the drop in the 27-month cycle may be cancelled out, and production in 1960 equal to or above production in 1959.

A knowledge of industry conditions would be necessary to reach a really firm conclusion about the underlying trend. For instance, one would want to know demand trends on a per capita basis, and the import—export situation, and many additional industry factors before deciding that the growth trend would continue up.

Aside from the problem of trend (about which we have no firm opinions), we can reasonably expect that the 27-month cycle will be going down in 1960, and we can be *almost* certain that the seasonal pattern will continue to operate.





A POSSIBLE 34-WEEK STOCK CYCLE

Three members of the Foundation have reported to us that they have found cycles of about 34 weeks length in stock prices. They found this cycle in individual issues' prices, and in the Dow-Jones Industrial Stock Price Averages.

We have also found evidence of a cycle about 34 weeks long in the Standard & Poor's weekly Index of Industrial Stock Prices, the series we are using for our analysis of the short cycles in stock prices.

Statements about this cycle are preliminary and this article is a progress report rather than a final summary. But because many other members also work with the cycles in the prices of individual issues, it might be helpful to pass the information along—even though at this early stage the information is a clue rather than a fact.

The chart below summarizes what we have learned so far about this cycle. The solid line on the chart records the highs, and the broken line records the lows of the cycle as it appears in the particular form in which we now have the figures.

On this type of a chart, if the cycle were exactly 34 weeks long, and if no other random or cyclic force disturbed the course of the cycle, then the line of highs would be a horizontal line straight across the chart.

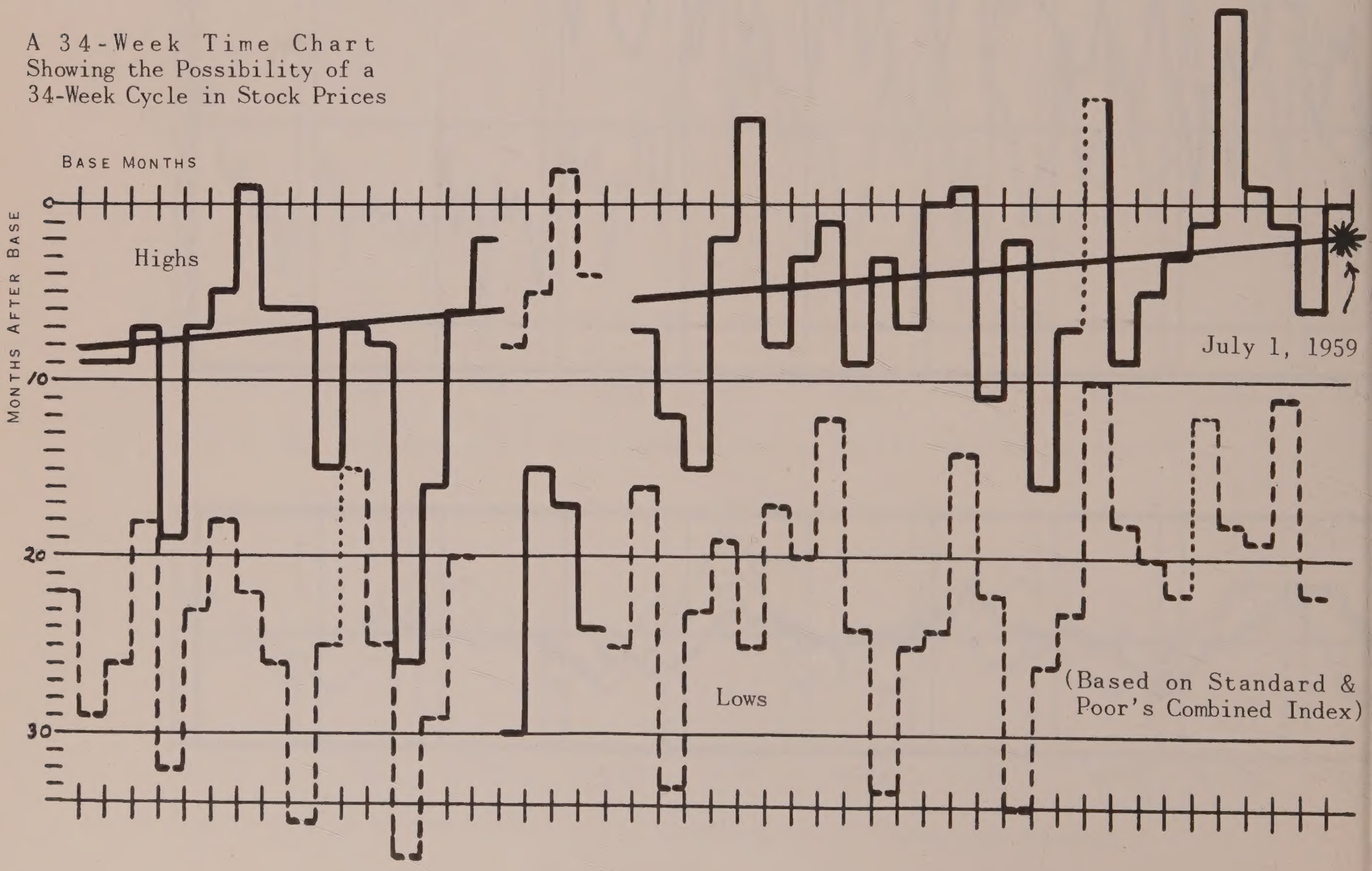
Although the highs do jump around, it can be seen that they tend to oscillate around an axis, and that this axis is not level at 34 weeks, but rather tilts slightly upward. This suggests a shorter length than 34, and the axis which is drawn on the chart represents a length of 33.87 weeks.

If the axis line of highs on the chart is reasonably accurate (later calculations will refine it), then the cycle had an ideal or average high as marked by the asterik, which is about the week of July 1, 1959.

I do not want to imply that 33.87 is necessarily the right length or that the week of July 1 is necessarily the right timing. We expect to do a considerable amount of additional work on this length before reaching a final conclusion.

In the meantime, those of you who work with the prices of individual issues have the hint of another length to look for. (And let us know what you find!)

G. S.



A 34-Week Time Chart Showing the Possibility of a 34-Week Cycle in Stock Prices

(Based on Standard & Poor's Combined Index)

NORWEGIAN LEMMING AND RODENT CYCLES

BY LEONARD W. WING

Long have Scandinavian people known that lemming outbreaks occur regularly at about four-year intervals. Fantasy, legend, and superstition have crept into the history of outbreaks. It is said that there rained big yellow mice, and that lemmings fell from the sky.

Man's philosophical thinking about lemming outbreaks would be a fruitful source of inquiry. Here I shall be concerned with measuring the more apparent cycle in the four-year range as it may be done with the record at hand.

The material in this study are not counts of rodent populations and no *amplitude* can be used. Yet the outbreaks do mark amplitude, because the outbreak years were years of greater abundance. The lemming, mouse, or rodent years used were "high" years, but without any numerical basis on which to determine their relative "highness."

The data, however, can be studied by *time charts*. I have used four years as the time chart length. The data are plotted separately by six Norwegian geographical divisions. (My original article showed 18 time charts, one for each of the geographical locations, or six each for lemmings, mice, and rodents. Only one of the lemming charts is reproduced here.)

Straight lines have been fitted to all the charts for the purpose of measuring their slope. The wave length is computed from the slope of the line with respect to the time-chart interval. By this method the wave lengths indicated for each of the six locations were obtained.

The ideal or typical timing of the band of highs on each time chart may be read off the chart itself. This I have done at the 1928 base interval, where the small circle indicates the crossing of the interval by the line of the band of highs. These points mark the timing with respect to the 1928 base interval. As the lows are based upon the highs, their timings can be quickly figured. Ideal timing forward and backward from these points can be determined by adding or subtracting multiples of 3.86 years.

The data from all the charts, both the indicated length and the ideal timing follows:

Cycles Shown by 4-year Time Charts (1871—1949)

	Indicated Length			Ideal Highs		
Location	Lemming	Mice	Rodents	Lemming	Mice	Rodents
A	3.87	3.89	3.88	1929.5	1929.7	1929.7
B	3.86	3.86	3.87	1929.6	1929.6	1929.5
C	3.86	*	3.87	1929.6	*	1929.5
D	3.87	*	3.86	1929.6	*	1929.5
E	3.86	3.85	3.86	1929.6	1929.6	1929.6
F	3.86	3.86	3.86	1925.5	1929.6	1929.5

*Data are too few for conclusions to be reached.

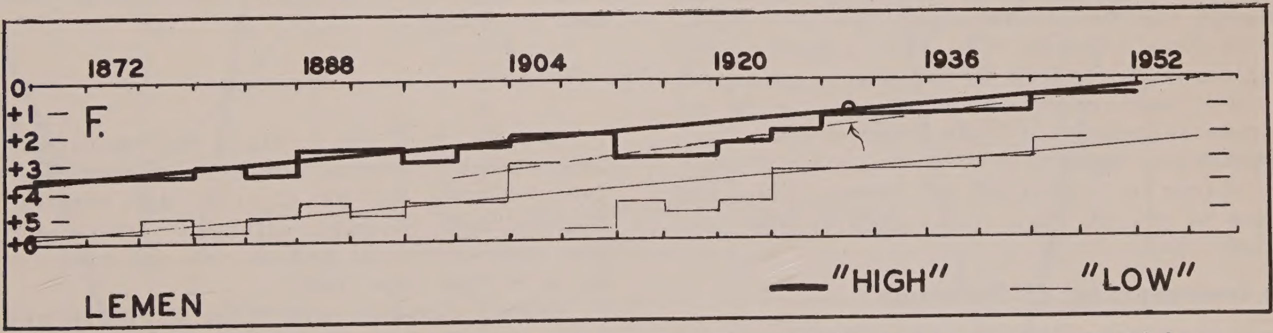
The cycle thought to be about four years in lemmings (*Lemen*), mice (*Mus*), and rodents (*Smagnagere*), (1871—1949), has been found to be of the same length over all of Norway: 3.86 years.

The timing is substantially the same for the groups of animals in the several regions so far as it can be determined with available data.

It is probable that other cycles influence the 3.86-year cycle, particularly one of 3.65—3.80 years that appears rather clearly in the more recent data. No other cycles have been measured because it seems likely that gaps in the record of outbreaks can be filled in from the literature.

Additional data before 1871, nearly continuous to 1823 and fragmentary to 1578, give a "backcast" that confirms results obtained with the 1871—1949 data. They indicate that the length of the cycle is about 3.862 years long.

THIS ARTICLE IS A CONDENSATION OF "TIME CHART MEASUREMENTS OF NORWEGIAN LEMMING AND RODENT CYCLES," BY LEONARD W. WING, WHICH APPEARED IN THE JANUARY 1957 ISSUE OF THE JOURNAL OF CYCLE RESEARCH, VOL. 6, NO. 1.



Four-year time chart of Lemmings (*Lemen*) in Norway. The band rises to the right to indicate that the cycle length is shorter than time-chart interval. A dashed line in Chart F indicates the possible presence of another and shorter cycle. The open circles in the 1928 interval marks the point where the timing was read.

Research by Others

MYSTERIOUS EXTERNAL FORCES BECOMING RECOGNIZED BY SCIENTISTS

By Edward R. Dewey

Science is gradually accumulating evidence in support of our basic hypothesis that "something out there" influences life here on earth. In other words, that there are, in our environment, hitherto unsuspected forces to which we, as living creatures, are subject. It behooves us to know about these forces so that we can control their effects, or at least adapt ourselves to them.

Four separate lines of inquiry come to mind. I refer to the work of Shelford and Flint relative to chinch bugs, of Burr relative to the electric potential of trees, of Brown relative to plants, and of Douglass relative to tree rings.

Vigor of Chinch Bugs

The chinch bug is a small insect, prevalent in the midwest, very destructive to grass and grain.

In studying the abundance of this insect from 1823 to 1940, Shelford and Flint discovered that there is an unexplained difference in the vigor of chinch bugs emerging from hibernation in different years. Over a nine year period (chinch bugs have a 9.6-year cycle) there was a 192-fold difference in vigor between year of greatest vigor and year of least vigor! In their own words, ". . .bugs were bred in the laboratory under several different conditions of light and temperature, including constant and variable temperatures and humidities. Bugs bred under all the different conditions showed a comparable degree of reproductive vigor or general weakness, indicating that the physiological condition in each case had been established *before the bugs were placed in the experiments*"[1] (Italics mine).

Electric Potential of Trees

Burr finds that the electric potential of trees in the New Haven area go up and down together, even though the trees are separated by several miles! In Burr's words, "So far, a search for correlations with changes in barometric pressure, temperature, and humidity has failed to show any significant relationship."[2] In other words, something mysterious again.

The electric potential of trees, like the abundance of chinch bugs, also goes up and down in rhythmic cycle.

Oxygen Consumption of Potatoes

Brown goes even further than Shelford and Flint and Burr. In his experiments he actually eliminated variations of light, temperature, and barometric pressure. He placed the objects of his experiments in *hermetically* sealed cylinders, but still they fluctuated in cycles!

In Brown's words, "Collectively these facts provide incontrovertible evidence that even when we have thought we have excluded all forces influencing the living things, there is, nonetheless, cyclic information, unquestionably with all the natural periodicities of the atmosphere imbedded in it, still impressing itself upon the organism. Living things might conceivably possess inherited, regular rhythms, but it is quite inconceivable that they are born with an inherited plan of all the erratic temperature, barometric pressure, and background-radiation fluctuations which are to occur during their lifetime. So far, we do not know what the specific nature of the factor or factors may be which are directly effective on the living organism. This is one of the most important and exciting problems before us in our continuing research."[3]

Weather

And finally A. E. Douglass has written a book, that I hope will soon be published, in which he is reported to have said that *astronomical forces* are at work—motion of the planets and the behavior of the sun—which he feels are responsible for the kinds of weather we have. Wilson, quoting Douglass, said, "A combination of tree-ring growth, sunspot cycle occurrences, and planetary movements holds the key to the forecast of weather conditions over an extended period of time. . ."[4]

Summary

These investigations, and many more, show the gradual breaking down of resistance on the part of science to the idea that external forces are responsible for at least some of the rhythmic forces we observe in plants and animals, including man.

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THE HUTNER CYCLE ANALYSIS

Summary

The composite of three cycles measuring optimism (and pessimism) in business data, as isolated by Simeon Hutner, reaches a peak in early 1960. After the 1960 peak the curve drops continuously, except for a pause in 1962, to a low in 1965.

The three cycles used are 9.93, 3.35, and 11.14 years long, and were isolated in 1938 by Hutner. In 1952, Willford I. King extended the curve through 1960, and more recently he has taken the extension through 1968.

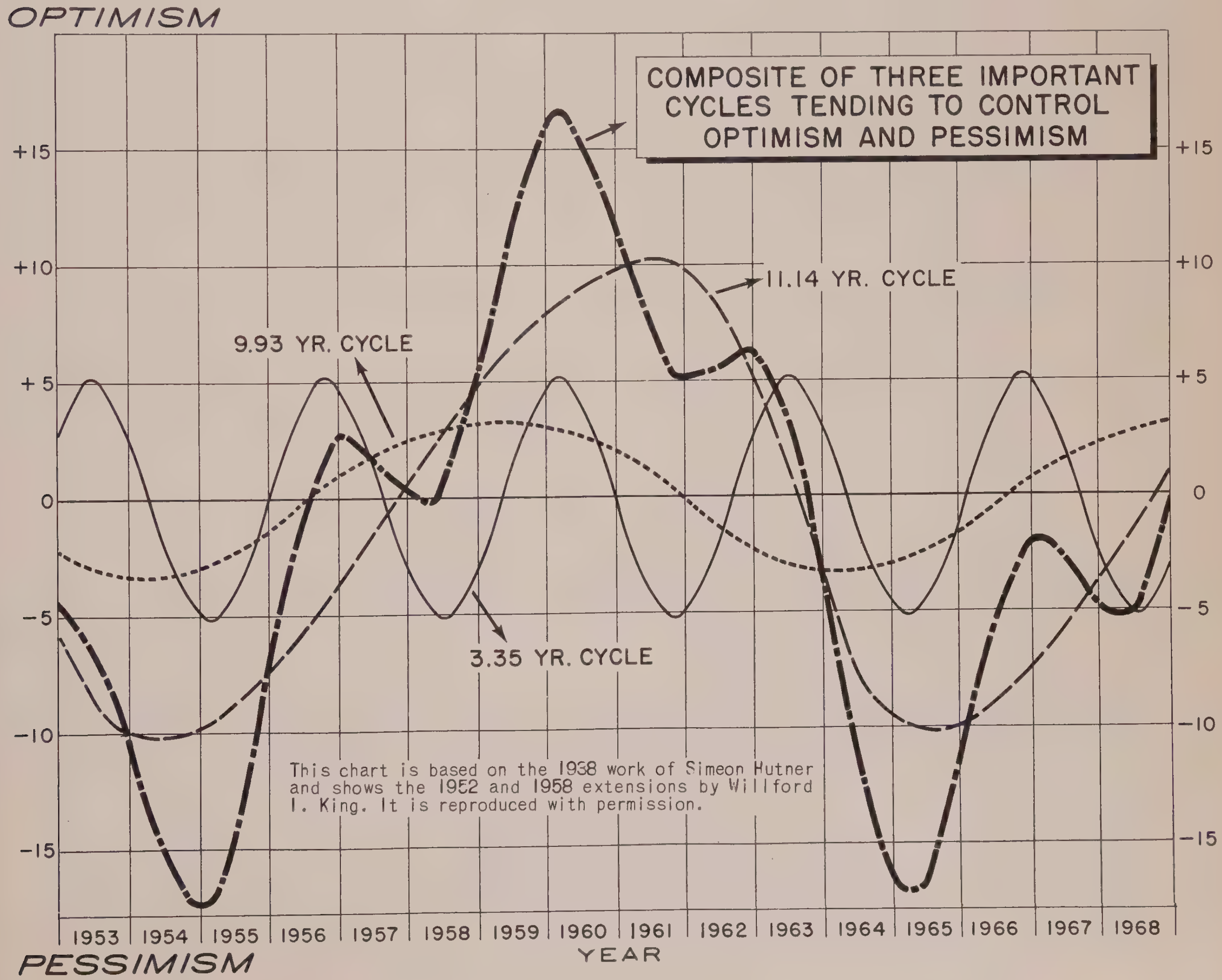
The 9.93- and 3.35-year cycles are sine curves (rather than zig-zag), and the 11.14-year cycle has a skewed (lopsided) shape. All three cycles, and the composite of the three can be seen on the chart below.

Hutner's work measuring optimism and pessimism is based on this assumption: optimism creates an expansion of credit, and pessimism leads to the contraction of indebtedness. These changes in the volume of credit produce changes in the demand for goods, and these variations in dollar demand for goods are the main forces causing business ups and downs.

Government, labor union, and other monopolistic interference with free competition affect the degree to which actual business activity will conform to the composite line of the three cycles, according to Hutner and King.

The analysis has been weak in predicting the *amplitudes* of swings, but more accurate in forecasting the *timing* of the turning points in the business cycle.

Although we do not know how this projection worked from 1938 to 1953, the composite curve did forecast the timing of the 1954 and 1958 bottoms, and the 1956-7 top. Therefore, the curve should perhaps be taken into account when you are weighing the possibilities for the near future. *G. S.*



This chart is based on the 1938 work of Simeon Hutner and shows the 1952 and 1958 extensions by Willford I. King. It is reproduced with permission.

THE 9.6 YEAR CYCLE IN SALMON

There are times, as all fishermen know, when fish are scarcer than usual. And, it is a fact. For example, Atlantic salmon have a 9.6-year cycle of abundance. More precisely, the per-rod-day catch of salmon by the Restigouche Salmon Club fluctuated in a 9.6-year cycle from 1879 to 1930.

Five years of more recent figures, which were furnished to us by the club president, fit into the extension of the cycle based on the original early record.

The chart below shows a smooth record of the catch, per-rod-day, by the Restigouche Club, as a solid line. The broken line is the ideal 9.6-year cycle. The record for the years 1952 through 1956 is shown by the dots on the right-hand part of the chart.

The cycle was discovered in 1929 by an angler, F. G. Griswold, when he was trying to account for the poor salmon catch of 1928. Later work on the cycle was done by Phelps and Belding, and the 9.6-year average length was worked out in 1931 by A. G. Huntsman.

Huntsman, working with statistics on net catches for the Maritime Provinces and the Gaspe Peninsula mentioned "a depression in abundance occurring on the average every 9.6-years of which the cause is unknown."

Huntsman pointed out that emphasis should be placed first on the repetition of the pattern in one place over a long period of time, as in the records of the Restigouche Club. This somewhat exclusive club (initiation fee is said to be $35,000) fishes for Atlantic salmon on the Restigouche River which is about 125 miles long and flows between the Gaspe and New Brunswick into Chaleur Bay. (Chaleur Bay is in the Gulf of St. Lawrence.)

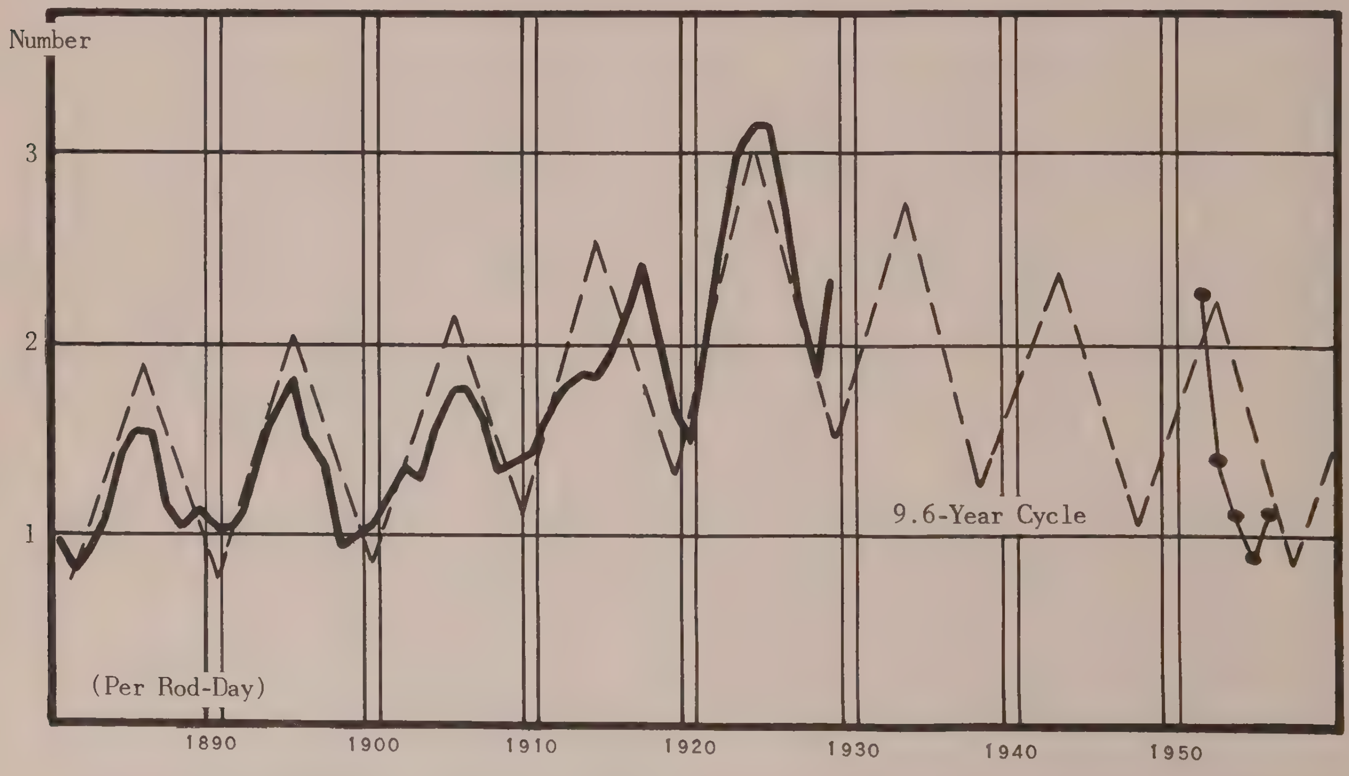
Over the long period of time during which the club kept records of its catch, the 9.6-year cycle is apparent. The next ideal high is due in 1962.

In addition to repetition over a long period of time at one place, Huntsman pointed out that emphasis should also be placed on repetition in space—that is, the possibility of the same periodicity appearing simultaneously in geographically separated areas.

In checking the records of the Atlantic salmon catch in other areas, Huntsman found that the cycle of abundance was the same.

Salmon are particularly suitable for cycle study because they are large for river fish, they are steadily in high demand, and they are readily caught when migrating up-river. The general interest in salmon has lead to record keeping over many years, which has enabled scientists to isolate the cycle.

The problem of the scarcity and depletion of salmon are important to the fishing industry as well as to the sportsman and a knowledge of this cycle an indispensible link in understanding these problems. *G. S.*



Salmon Catch by Restigouche Salmon Club

The Cycle Workshop

THE MOVING AVERAGE—CONTINUED

By E. R. Dewey

In previous installments of this series, I have discussed getting hints of cycles and the moving average. Once you have found a hint of a cycle and thus have a tentative length to start to work with, you compute a moving average of that length.

Computing the centered moving average was discussed in the October issue of *Cycles*, and a moving average was worked out as a demonstration.

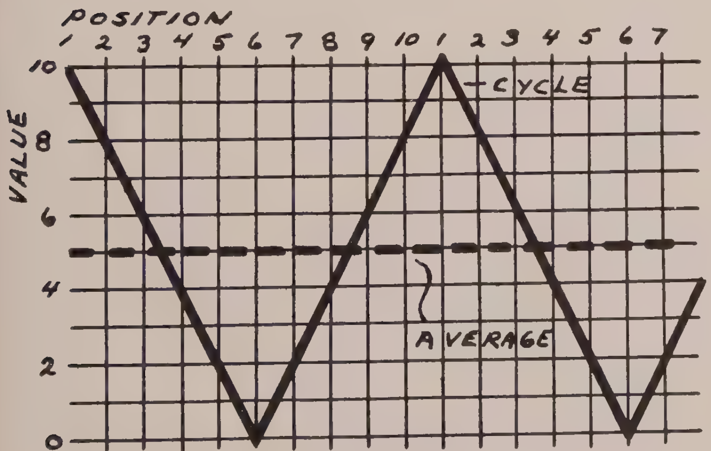
The next step in a cycle analysis is to compute the percentages that the original data are of the moving average trend. These percentages are the figures which you will use to find the cycle.

The process described so far follows:

1. Draw, on ratio scale, a chart of your series.
2. Examine this chart for possible cycles by counting, inspection, graduated scales, thumbing, or time charts.
3. Decide on a possible cycle length to start with.
4. Compute a *centered* moving average of the data with approximately the same length as the cycle length decided on in steps 2 and 3.
5. Compute the percentages that the original data are of the moving average.
6. Draw a chart of the percentages found in step 5, and examine this chart, looking for the length decided upon in step 3.

In steps 4 and 5 you remove trend, you clarify the length you are looking for (if it is actually present), and you minimize certain other cycles which also might be present.

Before going beyond step 6 in our description, we should pause to consider the effect of moving averages.



A 10-Month Moving Average of a 10-Month Cycle

When you compute a moving average exactly the same length as a cycle, you completely eliminate that cycle. That is, the variation in the original figures due to the cycle are not present in the moving average. The chart below shows a perfectly regular 10-item cycle as a solid zig-zag line. The broken line through the middle is a 10-item average. There is no cycle evident in the average line.

When you compute the percentages (step 6) you will simply re-create the cycle in its original form. (Of course, you have changed the figures from dollars, or units of somekind, to percentages around 100.)

If the moving average used is shorter than the length of the cycle, you do not eliminate the cycle completely. For, instance, a 9-item average will leave 11.1% of a 10-item cycle present in the average, if the cycle is zig-zag in shape, and symmetrical.

On the other hand, if you use a moving average which is longer than the length of the cycle, the cycle appears in the moving average in reverse phase (upside down).

The effect of various moving averages on a 10-item cycle is given in the following table.

Moving Average Length (Items)	% of 10-item Cycle Left in the Moving Average
3	73
5	52
7	31.4
9	11.1
10	0
13	-16.9
15	-17.3
20	0

The part of the total strength that will be left in the moving average in any given case depends upon the cycle length and the moving average length in that case. It is an easy matter to work out a simple example to find out what has been done to the cycle by a given moving average.

If you had used a 7-item moving average and then found that you had a 10-item cycle, the moving average would have 31.4% of the cycle strength at the crest left in it. In turn, when you computed the percentages that the data are of the moving average (these figures are called deviations), the amount of the cycle that is seen in the deviations would be 68.6% of the total strength of the cycle.

It is important to keep in mind that every time you use a moving average you effect the amount of the cycle that will remain in the deviations that are computed in step 5.

Foundation Affairs

SIR DAVID BRUNT ELECTED TO COMMITTEE

We are pleased to announce that Sir David Brunt has been elected to membership on the Committee of the Foundation by the Board of Directors.

Who's Who in Great Britain lists the following facts about Dr. Brunt:

Brunt, Sir David, created Knight, 1949; Fellow, Royal Society, 1939; M.A., Sc.D., Hon. Sc.D. (Wales); Secretary, Royal Society, 1948-57, Vice President, 1949-57; Emeritus Professor of Meteorology, London University, 1952; Chairman of Electricity Supply Council, since 1952.
Education: University College of Wales, Aberystwyth (First Class Hons. Mathematics, 1907); Trinity College, Cambridge (Mathematical Tripos, Part II, 1910); Isaac Newton Student, 1911-13. Lecturer University of Birmingham, 1913-14; Lecturer Monmouthshire Training College, Caerleon, 1914-15; served European War 1916-19; Superintendent Army Meteorological Services, Air Ministry, 1919-1934; Professor of Meteorology, Imperial College of Science and Technology, South Kensington, 1934-52 (Fellow, 1954); Hon. Associate, Manchester College of Technology, 1955.
Chairman of Council of British Gliding Association, 1935-46; President, Royal Meteorological Society, 1942-44; President Physical Society, 1945-47; Royal Medal (Royal Society), 1944; Buchan Price, 1933; Symons Gold Medal, 1947, of Royal Meteorological Society.
Publications: *Combination of Observations,* 1917; *Meteorology,* 1928; *Physical and Dynamical Meteorology,* 1934; *Weather Science for Everybody,* 1936; *Weather Study,* 1942; scientific papers in various journals.

Chapter Affairs

NEW YORK JANUARY MEETING

Lcdr. David Williams, Manager of Cable Purchases for Consolidated Edison Company of New York, spoke to the New York Chapter at their Second Annual Dinner-Meeting on January 13, on the subject, "Cycles—Real and Synthetic."

While evidencing an extensive knowledge of the work of others in cycle research, Lcdr. Williams also indicated an intensive effort of his own to "discover the laws which govern the operation of cycles, and to deduce the cause or causes of cycles."

He spoke of Samuel Benner as the father of cycle analysis in the United States whose remarkably accurate phrophesies on prices were based on his theory that "the cause producing the periodicity and length of these cycles may be found in our solar system". . .and that Uranus and Neptune "may send forth an electrical influence affecting Jupiter, Saturn, and, in turn, the Earth." He detailed scientific evidence of high electrical currents surrounding the earth and described the work of John Nelson, Propagation Analyst for the Radio Corporation of America whose predictions of magnetic storms in our atmosphere have attained an accuracy of better than 92%. The light and power failure in New York City on August 17, 1959, coincidental with a severe electromagnetic storm predicted by Nelson lead to Williams' study of cable failures. Using Nelson's techniques, the speaker has been able to predict such failures 90% of the time.

Lcdr. Williams expressed the belief that changes of geomagnetic disturbances brought on by planetary arrangements have an effect on human emotions and therefore on the business cycle. With this in mind, he presented a chart of the planetary arrangements to prevail on January 27, 1960 and predicted a serious magnetic disturbance whose effect should be manifest, he asserted, in the economic realm. On the basis of his studies of planetary arrangements, Williams forecast that the peak of the present business cycle would occur at the end of the first quarter of 1960.

Williams declared that cycles discovered to have been in existence in the past may be only synthetic and should not be used for prediction in the future since surrounding circumstances may be different. He insisted that the causes of cycles must be known in order to be sure that those cycles are real and have predictability.

The speaker at the March 16 meeting of the New York Chapter will be Joseph E. Granville, Market Analyst, E. F. Hutton & Company.

Harry Bogaty, Secretary

Letters

Dear John Appleseed:

I subscribe to *Cycles* because there is occasionally something interesting.

You act as if you were the only individual alive who doesn't receive compensation on a par with his abilities. I am a teacher. I have been offered salaries in industry at triple my present salary. I don't, however, go parading myself around proclaiming what a dedicated and unthanked servant of society I am. If you're really dedicated you don't go around shrieking and pulling your hair because no one appreciates you or your efforts. If what you are doing really means a lot to you, you find some way to continue without being so offensive.

Middletown, Connecticut A. E.

Comment: I am not in the least a dedicated man. I do what I do because it is more fun than making money would be. In fact, it is so much fun that I am ashamed to take the $6,000 a year that I am now supposed to get. I wouldn't take it if my own finances were sufficient to enable me to live comfortably in a place where I could get adequate help.

You note the word comfortably. If I were truly dedicated, I would disregard comfort. E. R. D.

CYCLES

Dear Mr. Dewey:

After five months spent in the jungle I am back in Rio and find *Cycles*. . .

I am favorable to your research program and would like to help. . .but unfortunately I am broke. I lost my business, my house. . .and have to start all over again. As soon as I make money (and I hope it will be soon. . .) I shall send you one hundred dollars. Useless to say that my "sentiment" graph is way down. . .

Rio de Janeiro G. D.

* * *

Dear Mr. Dewey:

The various comments throughout your work always leave me with the feeling, and it is strictly subjective, that you are inevitably and certainly dealing with end products of actions rather than causes, and that yours and related researches seem to beg the real question.

As an illustration, (one reads) that "economics of a country is often decided by the tone of its population"! In my opinion, this statement is meaningless. Whatever impells or motivates a population to behave as it does is not alluded to. Yet this force is the missing "X" in cycle research.

We must look behind human behavior, even behind the subconscious, if you will, to seek whatever this impelling force may be.

Now, one may conduct surveys to determine why people act as they do. But, such polls are meaningless as basic studies. Being human, most people would not be aware that they were motivated by some force outside (or inside) of themselves. Most people would vehemently deny that they were motivated, and reply "taint so." We need only to observe our own mental attitudes and emotions and resulting actions and reactions during the hot summers as contrasted to the cold winters. Is there not often a divergence in outlook, actions, and decisions? In other words, do our feelings cause the changes of seasons, or vice-versa?

Some time ago there was mentioned the work of Jacchia and King-Hele, and their conclusion regarding lunar tides or extra-terrestrial pulls. Several times in the history of mankind we have thrown out the baby with the bath water. I wonder if we are not doing just that by denying the possibility of extra-terrestrial forces? Has this subject been studied by a competent unbiased individual? (You know, there are periods in history when it is popular to be "fer" and then "agin" a subject.)

I would like to see some technically-competent individual who is also quite mentally and emotionally mature check out after exhaustive impartial studies the pros and cons of extra-terrestrial forces. I feel that until we do, we are doomed to cycles upon cycles of blindly studying cycles and then later of neglecting cycle studies!

Please note that the use of the pronoun "you" is not directed at you personally but is intended as a collective "you", directed at all contemporary (as opposed to modern) thinking which superabounds today.

Los Angeles, California Thomas H. Blandi

* * *

Dear Mr. Dewey:

In the course of my work as an exploration engineer I have occasion to use scintillometers in tracing mineral deposits. These instruments show background readings which vary appreciably over definite periods. Plotting of background readings shows apparent cycles, as sine curves, showing periods of (a) a few minutes, (b) something over an hour, and (c) roughly 12 hours. I think, if I had time, I could demonstrate definite cycles with precise periods of alternation.

These scintillometers measure radio-activity by measuring variations in gamma rays principally, and to a limited extent, alpha and beta particles.

There are quite a number of rays coming from outer space, and there are various kinds of apparatus for recording these ray's variations in physical laboratories.

May I suggest that here is an opportunity for basic research?

(a) Collate results of recorded data in laboratories with a view to tracing cycles for various kinds of rays.

(b) Attempt to trace the inter-relationships of lengths of cycles found and deduce the laws which control them.

(c) Attempt to trace a connection, if data for a sufficient number of years is available, between the very short cycles we are writing about, and say, one of our well-known cycle families, such as the 17.75 year cycle.

(d) Do these short cycles vary in time of crest from the earth's poles to the equator?

N. Rhodesia — M. McKeown

THE STOCK MARKET

Dear Mr. Dewey:

I have found that when the market is "up" the second harmonic of the 17-week cycle is strong. That is, there is a clear wave about 8 1/2 weeks in length. When the 8 1/2-week wave disappears and we see the 17 week cycle only, it is a sign that the market will start down in a few weeks.

These two waves may be harmonics of (another period) which has an average length of almost 34 weeks.

Santa Barbara, California — G. T. Lane

THE ECONOMY

Dear Mr. Dewey:

I have just finished reading your letter in the January 1960 issue of *Cycles*. I cannot help but wonder if you are not moderating, watering down, explaining away a bit what your various cycles show. I certainly have the impression that they indicate the present boom has just about run out; that we are shortly to face the aftermath.

Yet you only conclude in your present article that "caution" should be the watchword for the 60's, "and what little we know about bycles suggests that now may be about the time for this reaction to begin." You also state that, ". . .politicians being what they are, they will try to buy us out of the next major depression."

I wonder if you ever spread the economic facts of the present inflation out in front of you so that you can visualize how far we have gone down the road of the Honorable Lord Keynes. After all, he did pretty much convince the world that you can always buy yourself out of a deflation and in fact that control of the money supply means control of the economy.

Now look at what we have done. Consumer debt is now $50 billions; the amount owed on small family houses $140 billions; individual (non-corporate) IOU's $240 billions. Or look at the table.

These figures for the most part come from Government publications. Maurice Stans is Director of the Budget and I understand he is a man of great ability and absolute integrity. The figures that I quoted above were used by him in a speech here and were published in the papers on December 9, 1959. The contingent debt of $648 is the computation of Mr. W. R. Williamson, formerly Actuarial Consultant to the Social Security Board. It was published in an article in the July 1959 issue of Freeman.

Debt	12/31/46	12/59	Increase
Federal - Stated	272.1	290	17.9
Additional (M. Stans)	0.	350.	350.
Contingent (W.R. Williamson)	0.	648.	648.
State	15.9	60.	44.1
Corporation	109.3	294.2	184.9
Individual	60.6	239.7	179.1
Total	457.9	1,881.9	1,424.0

Figures are in billions of dollars.

Any way we look at it our great extended boom is based primarily upon a war economy and it has been at the expense of running in debt about $100 billion a year. Are there not indications that we are about at the end of this prolonged spree? And does not a considerable number (if not all) of your cycles diagrams indicate that this is it? And if we do stop flourishing on increased debt and start to live sanely will not the collapse be sufficient to require universal national controls and competition with the Soviets on their own basis?

New York, New York — Lee McCanliss

Comment: I must distinguish between myself as an economist and as a cycle student.

As a lay economist I agree largely with your letter. Certainly we are in a spending spree based on a war economy; certainly if we do not stop flourishing in debt we will ultimately require universal economic controls; certainly we are hell-bent for socialism.

Your figures are impressive and suggest that sooner or later we will have a collapse. The chart I printed in *Cycles* in April, 1959 suggest that we are in a situation similar to that of 1929, and that we are due for a comparable bust.

However, I am not an economist and do not feel that I should publically express opinions outside my field of competence. Speaking as a student of cycles I do not feel I should go further than I did in my letter of January, 1960. As a student of cycles I am supposed to deal with fact and not with opinion. Although what we know of cycles does suggest caution, at the moment it doesn't call for the drastic decline that your judgment and mine indicates is not too far away.

January 7, 1960 — E. R. D.

The Cycle Round-up

MARCH 1960

Series	Unit	Month	Amount
Aluminum Production	Thousand tons	Nov	153.7
Automobile Factory Sales	Thousand cars	Nov Dec	268r 496p
Bond Yields—Moody's Domestic Corporate	Per cent	Nov	4.87
Cocoa Bean Prices—Accra, New York	Cents per pound	Nov	33.0
Copper Prices—Electrolytic, New York	Cents per pound	Dec	33.72
Cotton Consumption—	Thousand bales	Nov	725
Hog Prices—Wholesale, All Grades, Chicago	Dol. per 100 lb.	Dec	11.19
Manufacturing Production—F.R.B. Index, Adjusted	1947-49=100	Dec	160e
Oats Prices—No. 3 White, Chicago	Cents per bushel	Dec	79.6
Stock Prices—Standard & Poor's Combined Index	1941-43=10	Dec	59.06
Sunspots	Numbers	Dec	117
Unemployment	Per cent	Dec	5.16

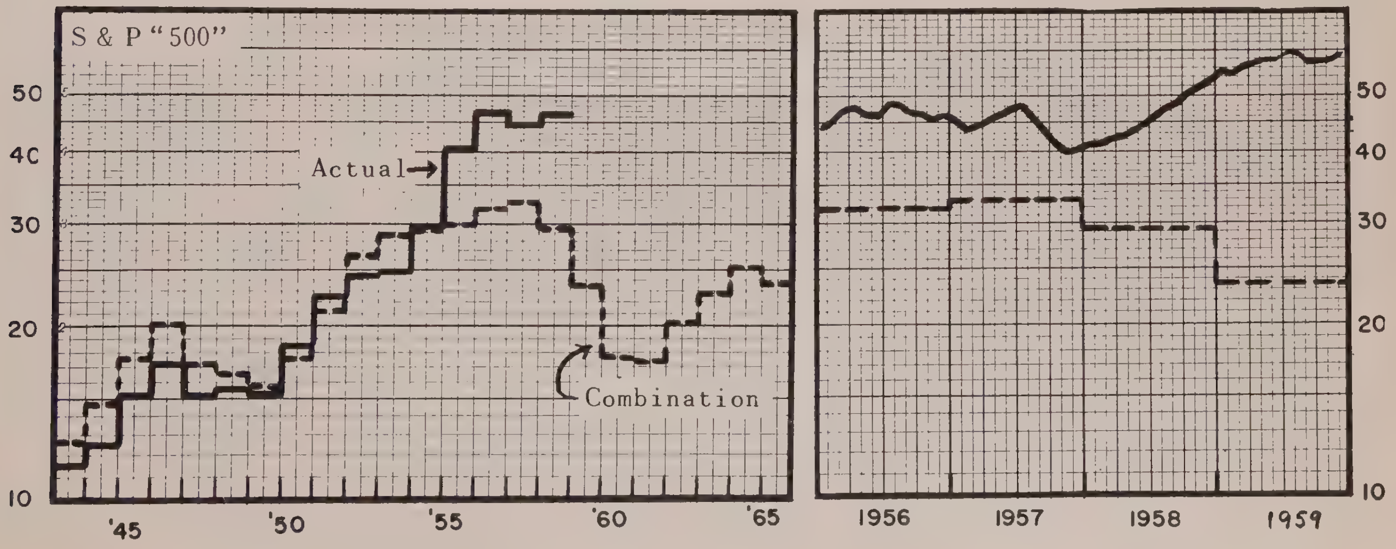
p - preliminary; r - revised; e - estimate

STOCK PRICES

The broken line on the chart below is a combination of the 11 cycles outlined on page 173 of the August 1959 issue.

The combination includes the 10.83-year cycle discussed in August and is thus a slight revision of the previous combination.

The difference between this chart and the previous version is minor, however.



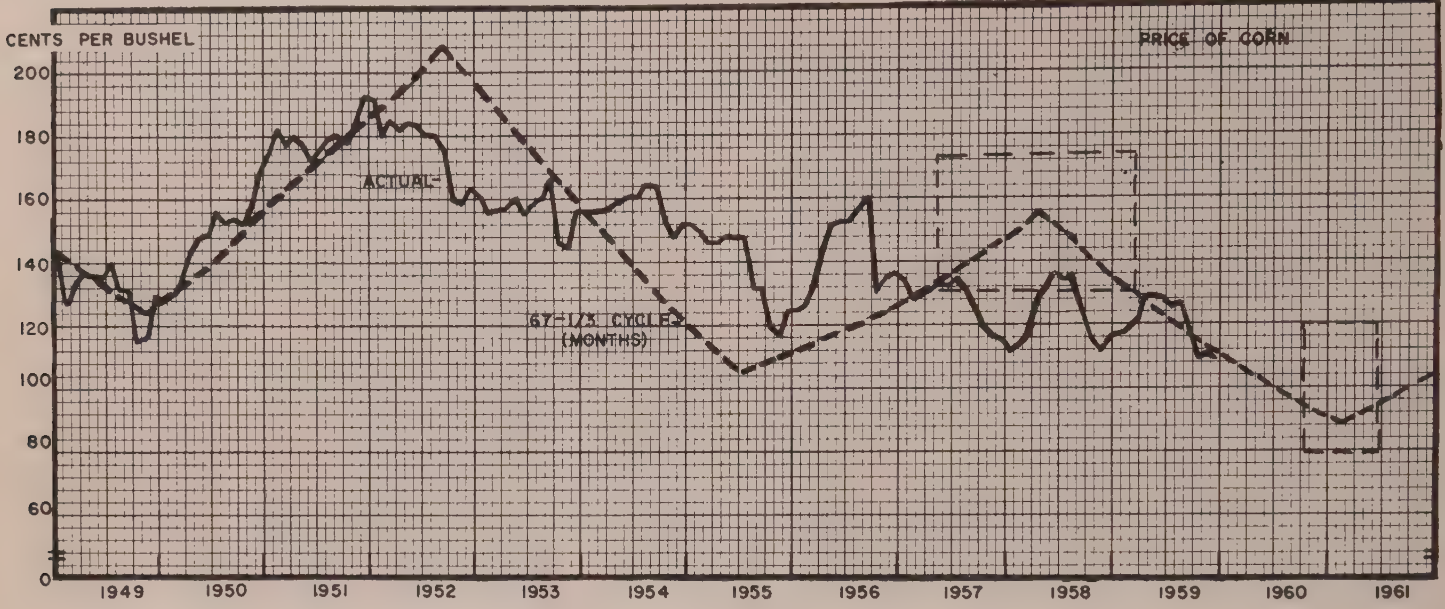
CORN PRICES

The broken line on the chart below is the combination of the ideal 67 1/3-month (5.61-year) cycle and the underlying trend.

The ideal (average) cycle is now on the way down to an ideal low due at February 1961.

The box on the chart shows the limits within which the actual low may fall, according to the average past experience.

The price of No. 3 yellow corn at Chicago averaged 109.5 cents per bushel during December.

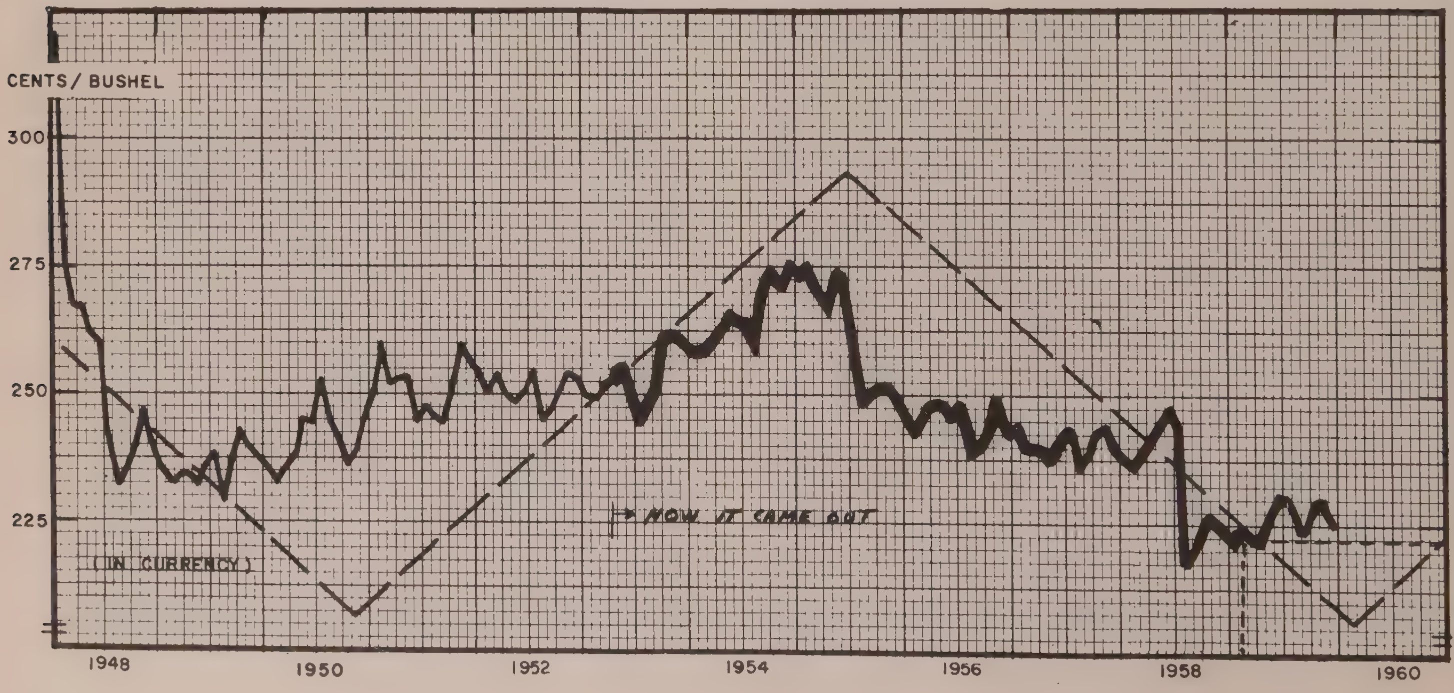


WHEAT PRICES

A 9.3-year cycle has been present in the price of wheat since 1859. This cycle is diagrammed on the chart below by means of the broken line.

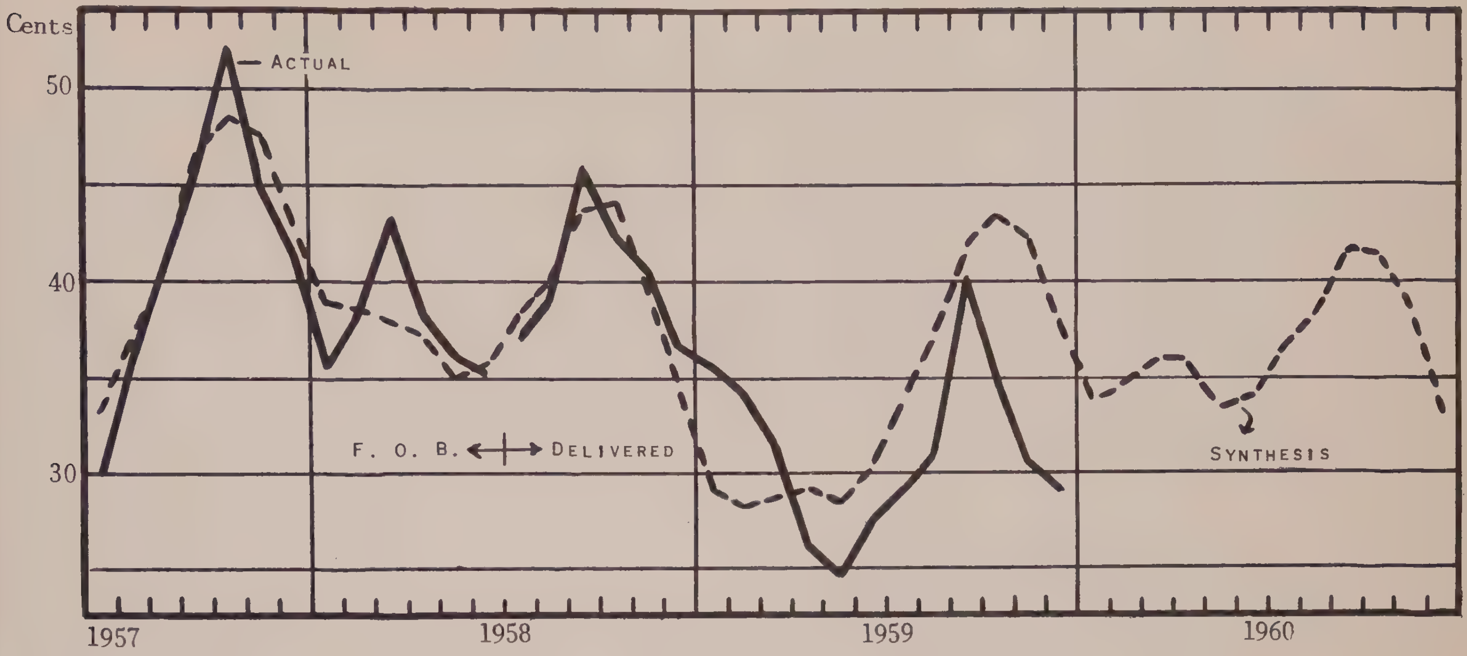
The box on the chart shows the possible limits within which the actual low could fall. The current ideal low is due at February 1960.

The average price of No. 1 dark northern spring wheat at Minneapolis during the month of December was 224.6 cents per bushel.



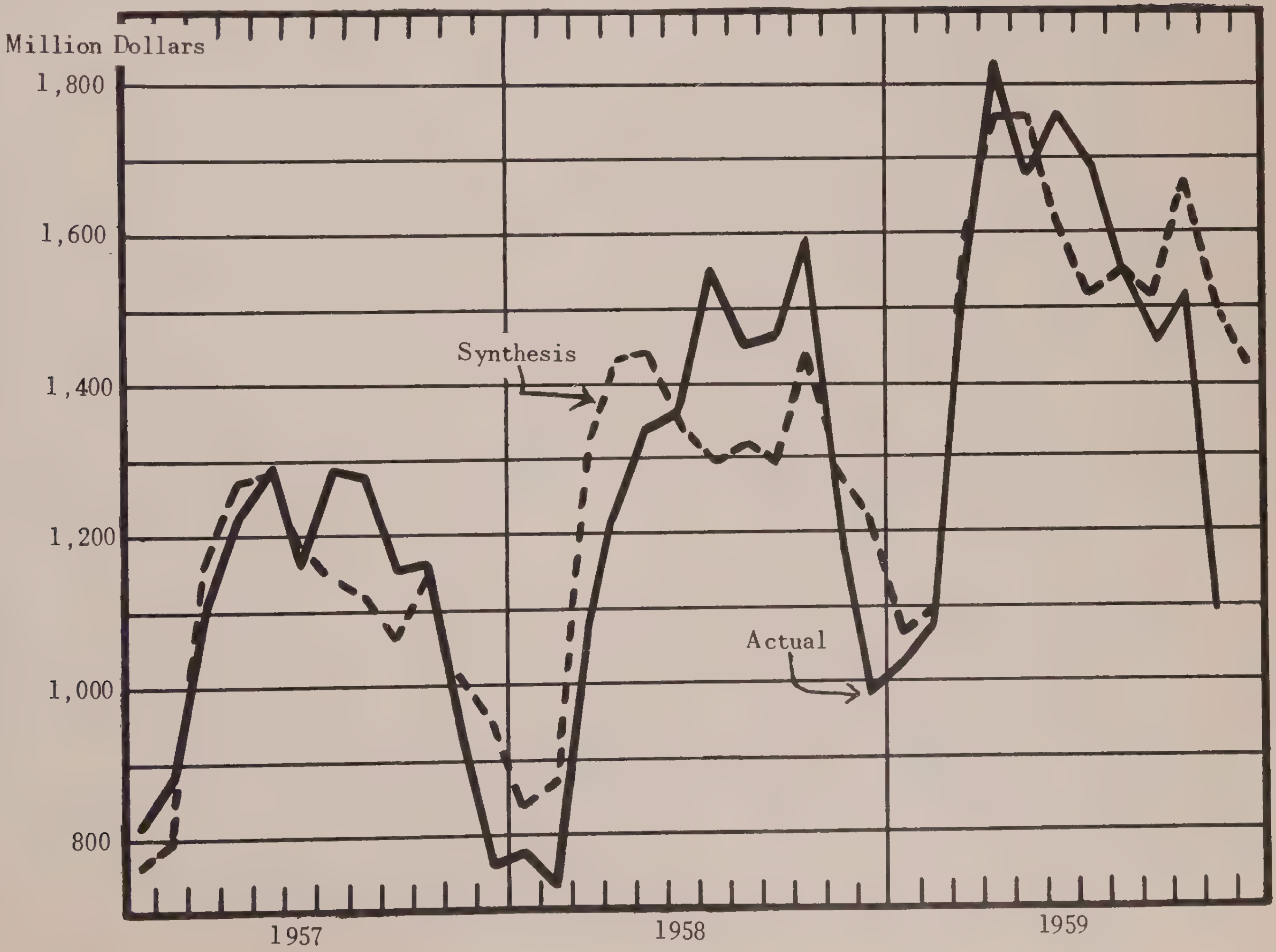
EGG PRICES

The price of eggs, wholesale, extras, large, at Chicago averaged 28.9 cents per dozen during December.



RESIDENTIAL BUILDING

Residential construction contracts let in November amounted to $1,092 million dollars.



LIABILITIES OF FAILURES

According to our cycle analysis (and, keeping in mind all the qualifications which apply to all cycle analyses), we can look for a continuing high level of liabilities of business failures through 1961 or 1962 before there is a substantial decline.

With the underlying trend a level horizontal line at 100%, the combination of the five cycles which we have isolated in the liabilities of business failures shows the following pattern from 1950 forward.

Year	% of Trend	Year	% of Trend
1950	127.4	1958	94.0
1951	113.5	1959	131.8
1952	86.1	1960	122.5
1953	61.1	1961	158.5
1954	67.6	1962	135.5
1955	66.7	1963	100.9
1956	69.5	1964	78.7
1957	64.6	1965	122.7

On the assumption that the cycles are real and would continue to dominate liabilities in the future as in the past, and also assuming a horizontal trend of 100%, we might expect a bottom in the actual curve from 1953 through 1957.

The cycles were isolated originally in 1953, and have been reported on from time to time, beginning with the October 1953 issue of *Cycles*.

However, the underlying trend was not horizontal, and in fact it rose sharply. In addition, the inflation index which we included also went up.

Following the low years 1953-1957, the combination of cycles turns sharply upward through 1958 and 1959.

In 1957 (May issue of *Cycles*) the combination of five cycles was tied to an underlying growth trend and an inflation index. The resulting calculated expression of possible liabilities has been used since in the Round-Up.

The underlying growth trend as it existed in 1957 (including figures through 1956) is shown in the top section on Figure 1. The trend that was used rose quite sharply.

The actual underlying situation as it later developed is shown in the lower part of Figure 1. Obviously the trend that was used in 1957 was too high. Accordingly, we are now revising it to a lower level.

This revised trend is also shown on the lower part of Figure 1.

The cycles as originally determined in 1953 have not been altered in any way. They are combined with the revised trend and the inflation index is shown on Figure 2 as the calculated (or synthesis) line. Actual liabilities are also shown on

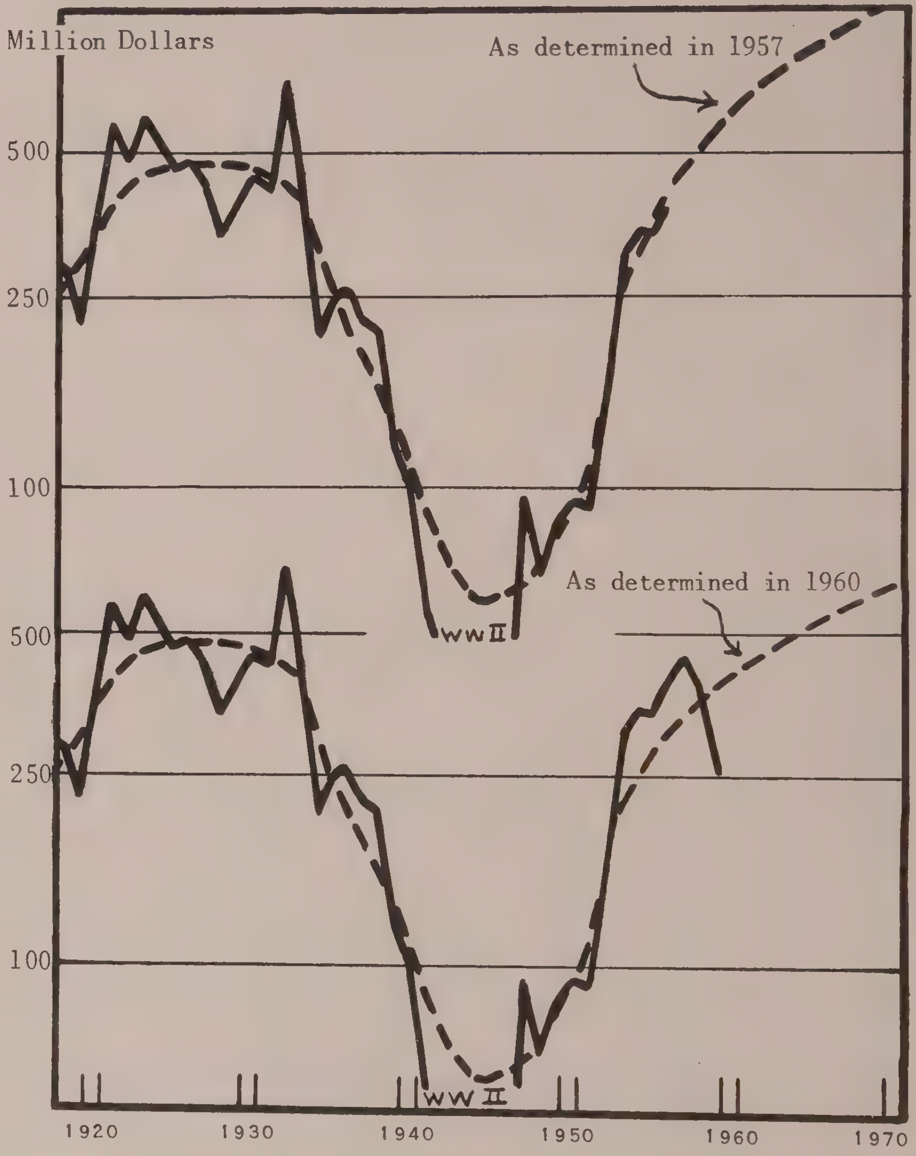


Fig.1 Trend of Liabilities of Failures

the chart as the solid line.

The general agreement (and disagreement) between the two lines beginning with 1908 can be seen by a simple inspection of the chart.

In recent years the lines have varied within about the same tolerances as in the early period. From 1956 to 1957 the calculated line went up slightly. During the same period actual liabilities increased by 9%.

From 1957 to 1958 the calculated line increased again, this time by 62%. Actual liabilities did increase, but only by 18%.

From 1958 to 1959 the two lines moved in different directions, with the calculated line again indicating an increase, while during the same time the actual liabilities were falling off just a little.

A discrepancy in a single year, although important for that particular year, is not too important from a long range view in evaluating the validity of the cycles used. Occasional disagreement is to be expected.

A summary on the five cycles we have isolated in liabilities follows.

Length in Years	% Above Trend at High	Date of Ideal High
3.42	15.9	1958.98
5.9	12.5	1955.70
6.5	14.3	1961.50
9.2	38.0	1959.50
17.67	51.0	1946.50

The important question here is whether the actual liabilities will show a peak near the early sixties, followed by a dip after 1961.

The original work was done with yearly figures which began with the year 1857.

The latest monthly figures are shown below as an addition on Figure 2. (The monthly figures are multiplied by 12 to put them on a yearly basis for plotting.)

Recent monthly figures are:

	Month	x 12
	(in millions of dollars)	
1959 Oct	50	605
Nov	53	639
Dec	60	715

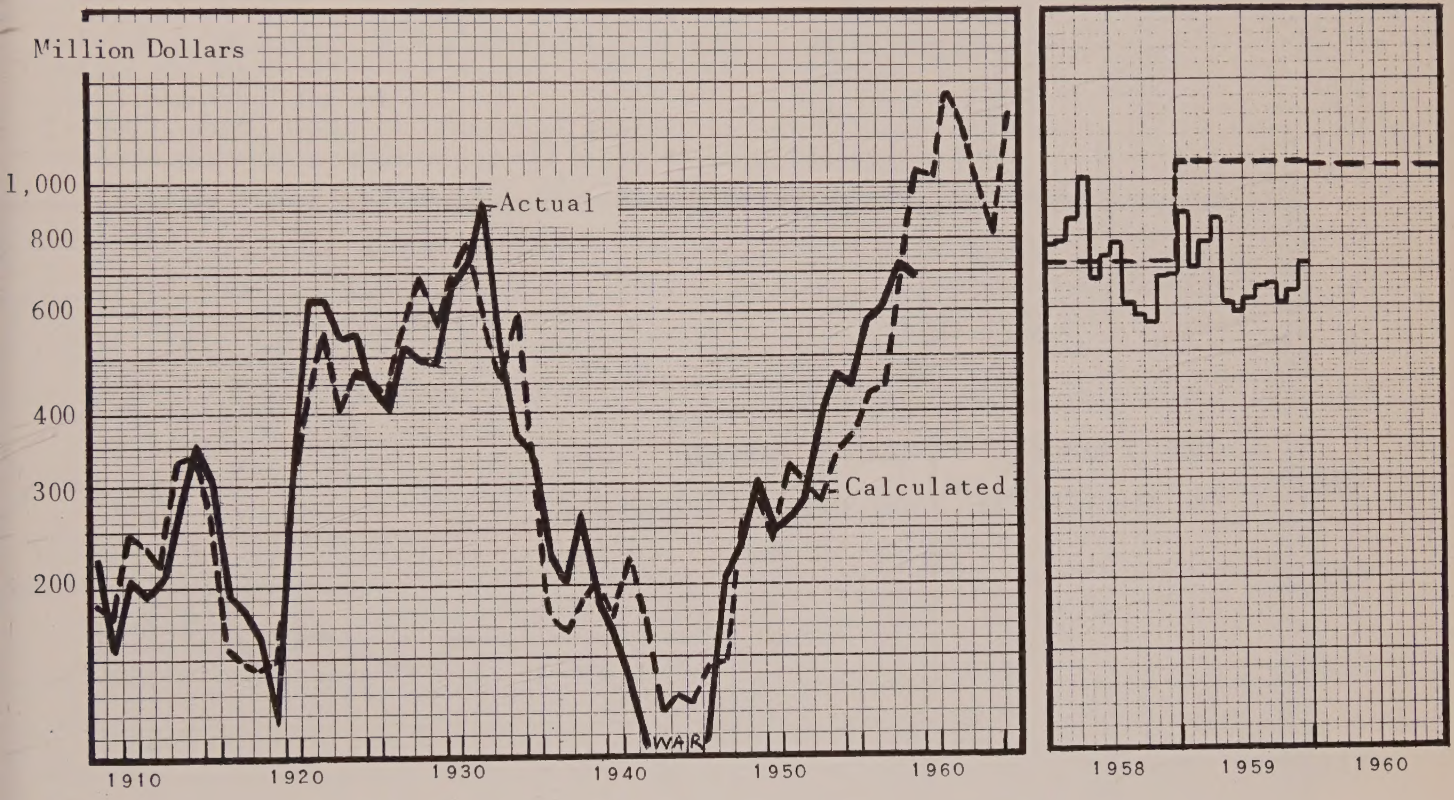


Fig.2 Liabilities of Failures—Actual and Calculated

The Geisinger Indicator

The Geisinger Indicator was -2.2 for September 1959 (May when advanced eight months).

In the past, when the Geisinger Indicator has cut -2 going down, bad business has followed.

Business in December, as measured by industrial production, was good. In fact, the Federal Reserve Board's new Index of Industrial Production, seasonally adjusted, was up 6% from November.

The Federal Reserve Board has revised its production index to take into account the fact that recent benchmarks were higher than had been anticipated. The revised Index is given below.

The sharp upturn in the F.R.B. Index of Production caused the First Difference Indicator to turn up to 1.17 (estimated) for November.

The Modified Geisinger Indicator dropped to -4.20 in September (May 1960 when advanced).

It is not possible to tell what part of the recent decline in the Geisinger Indicator is the result of the steel strike, and what part might have occurred anyway. Nor is it possible to tell what part of the decline—caused in the beginning by the steel strike—might become an element of basic weakness, simply by introducing a declining factor into the overall economy.

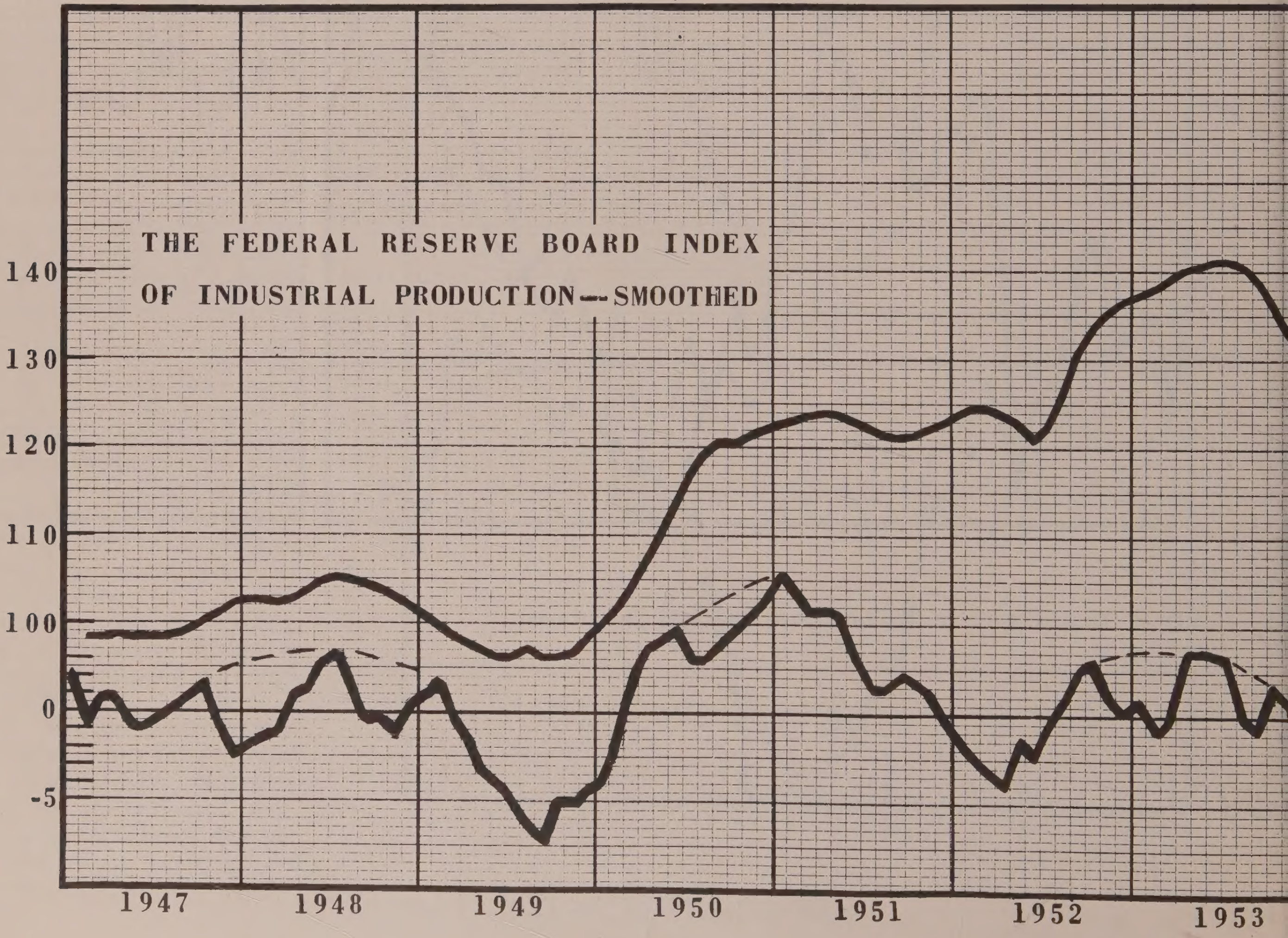
In spite of the difficulty of assessing the meaning of this particular decline, the appearance of -2 introduces a definite note of warning.

January 27, 1960

E. R. Dewey

Month	F.R.B. Index Before Revision	F.R.B. Index After Revision	Geisinger Indicator	First Difference Indicator (Before Revision)	Modified Geisinger Indicator	Timing Advanced 8 Months
Aug-1959	149	157	1.2	-1.67	-0.47	1960-Apr
Sep	149	157	-2.2	-2.00	-4.20	May
Oct	147	154	*	-1.16p	*	Jun
Nov	148p	156	*	1.17e	*	Jul
Dec	157e	165p	*	*	*	Aug

p- preliminary; e - estimated; * - not yet available



THE FEDERAL RESERVE BOARD INDEX OF INDUSTRIAL PRODUCTION—SMOOTHED

BACKGROUND

Explanation

The Modified Geisinger Indicator is an index which, in the past, has usually gone up and down ahead of the Federal Reserve Board Index of Industrial Production. The Modified Geisinger Indicator thus throws some light on the future.

The Modified Geisinger Indicator is the sum of the Geisinger Indicator and The First Difference Indicator.

The Geisinger Indicator was invented by Robert Geisinger. It is derived from figures which are published monthly in the **Survey of Current Business.** (Col. 3 of the table.)

The First Difference Indicator, is merely the amount by which the smoothed F. R. B. Index is above or below the value for the preceding month. It registers the rate of advance or decline. It has some forecasting value, too. (Col. 4 of the table.)

The sum of these two Indicators is the *Modified* Geisinger Indicator. It is advanced by eight months and plotted as the bottom line of the chart. (Col. 5 of the table.)

The F. R. B. Index of Industrial Production measures physical production in the U. S. A. It has nothing to do with stock prices. (Col. 1 of the table.)

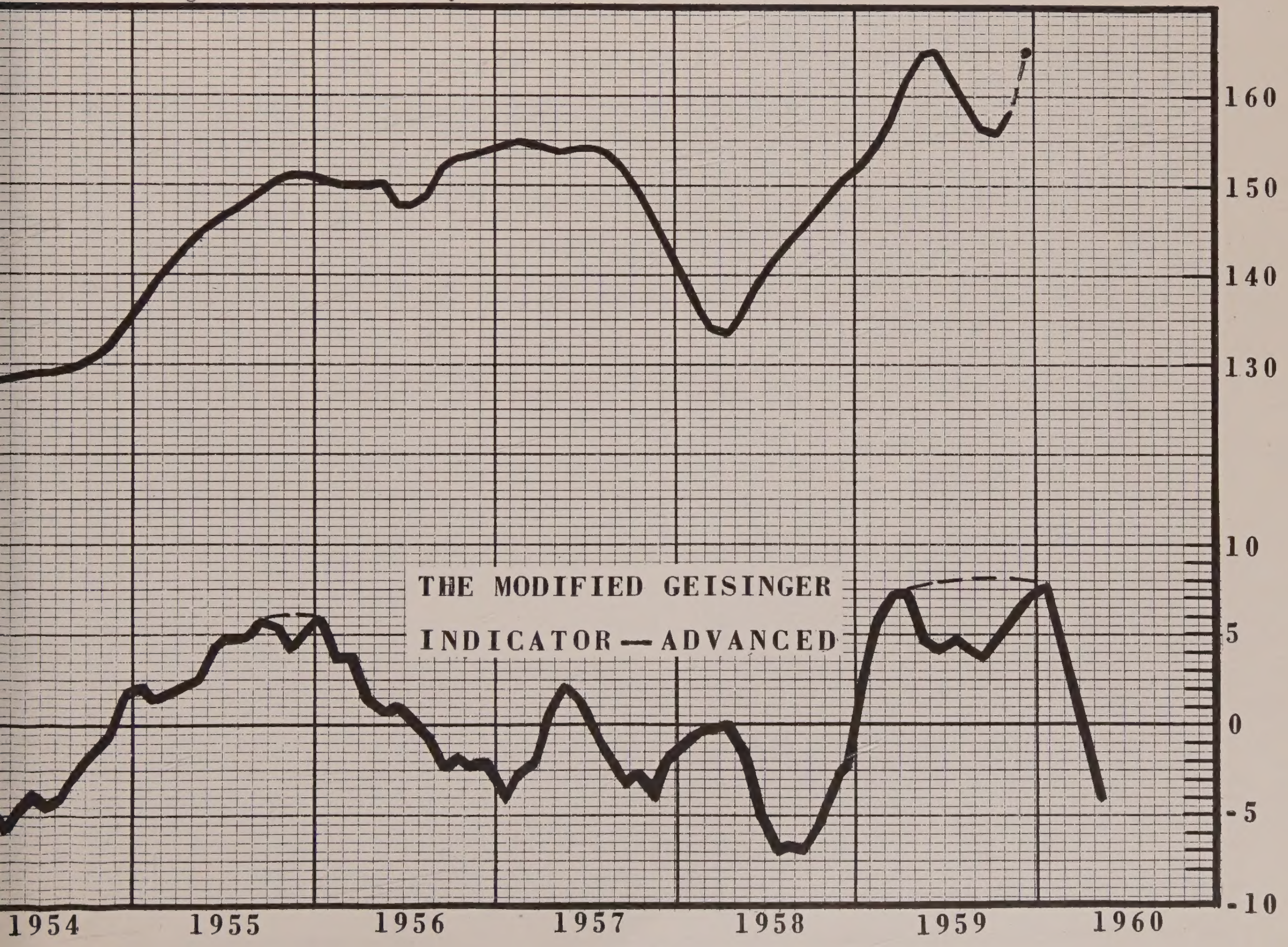
The smoothed values of the F. R. B. Index are plotted as the top line on the chart. It is smoothed by a 3-month moving average posted to the second position. The latest actual monthly Index of Production is recorded by a dot.

Interpretation

In the past, when the *Geisinger* Indicator going up, has cut +2, good business has followed; when, going down, it has cut -2, bad business has followed.

The important *turns* of the *Geisinger* Indicator and the *Modified* Geisinger Indicator often come 8 or 9 months before corresponding turns in Industrial Production. This fact gives some idea of what is around the corner. To help you to grope your way into tomorrow the Modified Geisinger Indicator is advanced 8 months. Where it is now, Industrial Production may soon be.

The degree to which the two curves correspond can be seen by inspection of the chart. The correspondence is general rather than specific. It is the broad sweep of the lines which is to be watched. The dashed lines which are added show how the eye should follow the Indicator.



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